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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,140	12/23/2005	Yoshifumi Adachi	12480-000155/US	5533

30/593 7590 02/09/2009  
HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 8910  
RESTON, VA 20195

EXAMINER
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REDDY, KARUNA P

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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02/09/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/562,140

**Applicant(s)**

ADACHI ET AL.

**Examiner**

KARUNA P. REDDY

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2008 and 12 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-21 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 12/16/2008 and 1/12/2009 has been entered.

Claims 11 and 22 are cancelled; claims 1 and 23 are amended. Accordingly, claims 1-10, 12-21 and 23 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-2 and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 7-10 of copending Application No. 11/579,603. Although the conflicting claims are not identical, they are not patentably distinct from each other because both are directed to water absorbent agents comprising internally crosslinked polymer particles whose surfaces are crosslinked by treating with organic crosslinking agent and water-soluble multivalent metal salt.

Copending application differs with respect to extraction rate of multivalent metal component; and is silent with respect to particle diameter, standard deviation, polyol as the surface crosslinking agent, and wt% of water-soluble component.

However, the extraction rate of 6.6 to 14.8 wt% of present claims is encompassed by the extraction rate of multivalent metal component of copending application of 5 to 100 wt%. In addition, applicants attention is drawn to MPEP § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F.2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. (underlining added by examiner for emphasis) *In re Vogel*, 422 F.2d 438, 164 USPQ 619,622 (CCPA 1970). Consistent with the above underlined portion of the MPEP citation, attention is drawn to specification of copending application (US PG PUB 2008/0032888 A1 is used for line citations) wherein it discloses that wt. average particle diameter of water absorbent resin is 500 µm or less (paragraph 0038), wt% of water soluble component is 35 wt% or less (paragraph 0043), polyhydric alcohols are used for surface crosslinking treatment, standard deviation is calculated using similar parameters (paragraphs 0107-0108), and dry powder is sieved using a sieve size of 850 µm and 150 µm.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1-2 and 23 are directed to an invention not patentably distinct from claims 7-10 of commonly assigned Application Serial No. 11/579,603. Specifically, See the discussion set forth in paragraph 4 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned 11/579,603, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

***Claim Rejections - 35 USC § 103***

6. Claims 1-4, 7-10 and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al (WO 00/53644).

It is noted that WO 00/53644 (WO) is being utilized for date purposes. However, since WO is not in English, US equivalent for WO, namely, Mertens et al (US 6, 605, 673 B1) is referred to in the body of the rejection below. All column and line citations are to the US equivalent.

Mertens et al disclose a powdery crosslinked polymer constituted of 55 to 99.99 wt% of polymerized ethylenically unsaturated monomers which contain acid groups and 0.1 to 5.0 wt% of one or more polymerized crosslinking agents. The crosslinked polymer so obtained is subjected to secondary crosslinking at its surface by polyol and a cation (column 3, lines 30-53). The particle size is preferably between 150 to 800  $\mu\text{m}$  (column 6, lines 46-49). A superabsorber with improved permeability properties and high retention capability is obtained by coating an aqueous solution of a polyol which has reacted with molecular groups near the surface, preferably with carboxyl groups, in the presence of a cation of a salt component with heating at 150 to 300°C (column 3, lines 56-60).

The water absorbing polymer product to be surface crosslinked is obtained by polymerizing 55 to 99.99 wt% of a monounsaturated monomer having acid groups, where monomers containing carboxyl groups are preferred. Particularly preferred is a polymer product obtained by polymerization in the presence of crosslinkers of acrylic acid or methacrylic acid (column 4, lines 65-67; column 5, lines 1-11). Aqueous solutions of salts are preferably used as cation to crosslink carboxylate groups near the surface. Examples of polyvalent cations are cations of aluminum, iron, chromium and other transition metals. It is preferred to use aluminum salts and alums and their various hydrates (column 4, lines 42-61).

See example 1 for the retention (TB) and absorption under pressure (AAP) for a 0.9% saline solution of 28.5 g/g and 25 g/g respectively. Furthermore, 0.5 g of aluminum sulfate 14-hydrate and 1.0 g of ethylene glycol are used relative to 100 g of polymer powder, and 2.5 g of water is used to make the crosslinker solution. Depending on the solubility of both components i.e. polyol and cation, the solution is heated to 20 to

100°C, preferably 20 to 60°C. Separate, yet simultaneous metering of a solution of the polyol and a solution of the salt component is also possible if homogeneous distribution of both components is ensured and the material is subjected to a thermal subsequent treatment. (column 7, lines 19-26). Once the secondary crosslinker solution is mixed with the polymer particles, secondary crosslinking reaction is performed at temperatures ranging from 150°C to 300°C (column 7, lines 41-44).

Mertens et al differs with respect to sequence of addition of organic surface crosslinking agent and multivalent metal compound; concentration of aqueous multivalent metal compound / component; silent with respect to the amount of water-soluble component of present claims; properties of water resin particle and the composition (i.e. average particle diameter of 300 to 500 µm and extraction rate of multivalent metal component; standard deviation of particle size distribution; moisture absorption blocking ratio; diffusion absorbency under load and humidification blocking ratio).

However, while present process claims are directed to addition of polyol followed by aqueous solution of multivalent metal component to particulate water absorbent resin and Mertens et al teach adding a mixture of organic crosslinking agent and multivalent metal compound solution, attention is drawn to *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946), wherein court held that selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results.

With respect to concentration of aqueous multivalent compound / component, while Mertens et al's examples are directed to a concentration of multivalent metal component outside the claimed value, it is noted that exemplification is not a requirement for a proper 103 rejection. Given that, attention is drawn to Mertens et al's



disclosure (see column 6, lines 61-65), which teaches that amount of water as solvent is preferably from 1 to 4 wt%. Therefore, it would have been obvious to use 1.0 g of water instead of 2.5 g per 100 grams of polymer product, in example 1 of Mertens et al, to give a concentration of multivalent metal compound / component of  $\geq 0.40$  with respect to a saturated concentration of the aqueous multivalent metal compound, absent evidence of unexpected results.

With respect to amount of water-soluble component, firstly the amount 35 wt% or less can be interpreted as  $\leq 35$  wt% (i.e. it encompasses an amount of 0 wt% and is not a required component). Secondly, even if it was greater than 0 wt% and is thus a required component, given that the water absorbent resin composition of Mertens et al is prepared by a substantially similar process and contains similar components, it is the examiner's position that the amount of water-soluble component is intrinsically present in the water absorbent resin composition of Mertens et al.

With respect to properties of water absorbent resin particle and composition, in light of the fact that prior art teaches / discloses essentially the same composition and process as that of the claimed, one of ordinary skill in the art would have a reasonable basis to believe that the water absorbent resin composition of prior art exhibits essentially the same properties. Since PTO cannot conduct experiments, the burden of proof is shifted to the applicants to establish an unobviousness difference. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

Even if properties of the water absorbent resin particle and composition of instant claims and prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make water absorbent resin particle and composition having the claimed properties because it appears that the references generically embrace the

claimed water absorbent resin particle and composition and the person of ordinary skill in the art would have expected all embodiments of the reference to work. Applicants have not demonstrated that the differences, if any, between the claimed water absorbent resin particle and composition and the water absorbent resin particle and composition of prior art give rise to unexpected results.

7. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertens et al (WO 00/53644) and Hatsuda et al (US 6, 562, 879 B1).

The discussion with respect to Mertens et al in paragraph 6 above is incorporated here by reference. Furthermore, polymers are also used in absorber articles suitable for various purposes by mixing with paper, fluff or synthetic fibers.

Mertens et al is silent with respect to the wt% of absorbent resin composition to hydrophilic fiber.

However, Hatsuda et al teaches absorbent structures comprising, particulate water absorbent resin substantially similar to the particulate water absorbent resin of present claims, and fibrous material. The absorbent article comprises an absorbent layer including the absorbent structure (abstract). The absorbent structure is characterized by comprising water-absorbent resin powder and a fibrous material such as a hydrophilic fiber. The weight ratio of the water-absorbent resin powder and hydrophilic fiber is in the range of 20:80 to 90:10 (column 16, lines 42-56). The absorbent structure is interposed between a liquid permeable surface sheet and a liquid impermeable back sheet (column 17, 55-58). Therefore, it would have been obvious to use water absorbent resin in an amount of 20 wt% or more because Mertens et al contemplates using water absorbent resin in absorber articles by mixing it with fibrous

material and Hatsuda et al teach weight ratio of particulate water absorbent resin and hydrophilic filler is in the range of 20:80 to 90:10.

### ***Response to Arguments***

- a) Applicant's arguments filed 12/16/2008 and 1/12/2008 have been fully considered but they are not persuasive. Specifically, applicant argues that (A) showing of unexpected results with respect to moisture absorption blocking ratio is due to (a) the extraction rate of multivalent metal component which is 10 to 70 wt% in claim 1; (b) a concentration of aqueous multivalent metal compound in the solution is 4.0 or more with respect to a saturated concentration of the aqueous multivalent metal compound in solution; (c) a concentration of the multivalent metal component contained in a mixed solution including the solution of the aqueous multivalent metal compound and the organic surface crosslinking agent is at least 1.80 wt%; (B) Mertens teaches that water-soluble polymer may be polyglycols etc. and is not a characteristic of the water-absorbent resin polymer of present claims.

With respect to (A), it is the examiner's position that showing of unexpected results with respect to moisture absorption blocking ratio is not commensurate with scope of present claims. The data in present application supports unexpected results for multivalent metal extraction rate in a narrow range of 6.6 to 14.8 wt%. Also, while there is a correlation between multivalent metal extraction rate (in a narrow range of 6.6 to 14.8 wt%), and (S/T-(M)) of 2.04 to 2.93, it is not apparent that a similar correlation can be seen for values outside this range. In fact, comparative example 12 which has S/T-

[M] of 3.0 has an extraction rate of 5.6 while comparative example 11 with S/T-[M] of 2.0 has an extraction rate of 5.2.

With respect to (B), applicant's attention is drawn to the new grounds of rejection in paragraph 3 above, necessitated by amendment.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Vasu Jagannathan/

Supervisory Patent Examiner, Art Unit 1796